Abstract of the Disclosure

This invention relates to a method and apparatus for increasing the performance of searcher by using the array antenna when the signal to interference plus noise ratio is low. The two-dimensional searcher performs the spatial-filtering to reduce the noise and interference components and then correlates the spatial-filtered signal with a pseudo noise (PN) code to thereby detect the incoming signals and acquire the corresponding code timings. Furthermore, the two-dimensional searcher can be used to increase the performance of a finger beamformer in two ways. One is to use searcher beamforming weight as initial finger beamforming weight to increase the convergence speed in the adaptive beamforming algorithms. The other is to reduce an amount of computation in the angle of arrival estimation algorithms by calculating the azimuth power spectrum only for the specific angle range.